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Factors Related to Long-term Traumatic Stress Responses in Survivors of Torture in Turkey

Metin Başoğlu, MD, PhD; Murat Paker, MD, MA; Erdogan Özmen, MD; Özgün Taşdemir, MD, MA; Dogan Şahin, MD

Objective.—To examine factors related to long-term psychological functioning in political ex-prisoners who had been subjected to systematic torture.

Design.—The psychological status of 55 tortured political activists, 55 nontortured political activists, and 55 subjects with no history of torture or political activism was assessed using Structured Clinical Interview for *DSM-III* for psychiatric assessment, Semi-structured Interview for Survivors of Torture, and other self-rated and assessor-rated measures of anxiety, depression, and posttraumatic stress disorder (PTSD). Correlational and multiple regression analyses were used to assess the independent effects of precaptivity, captivity, and postcaptivity variables as predictors of long-term psychological status among the torture survivors.

Setting.—Istanbul, Turkey.

Main Outcome Measures.—Number of lifetime and current PTSD symptoms, and scores on the Beck Depression Inventory, Hamilton Depression Rating, Hamilton Anxiety Scale, and State-Trait Anxiety Inventory.

Results.—Effect of captivity experience on various life areas (eg, family and social, economic, and employment status) and other postcaptivity psychosocial stressors were associated with PTSD symptoms, anxiety, and depression. Perceived severity of torture was related to PTSD symptoms but not to anxiety or depression. Lack of social support predicted anxiety and depression but not PTSD. Family history of psychiatric illness correlated with higher scores on most measures. Impact of captivity experience on family was the strongest predictor of PTSD symptoms.

Conclusions.—These findings point to three types of stressors related to different aspects of psychopathology in survivors of torture: perceived severity of torture, secondary effects of captivity experience on various life areas, and general psychosocial stressors following captivity. Different interventions may be needed for three components of survivors' traumatic experience: cognitive and behavioral strategies for treatment of PTSD symptoms, marital or family strategies for minimizing the impact of the trauma on the family, and strategies for enhancing social support to minimize postcaptivity depression and anxiety.

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FACTORS related to posttraumatic stress disorder (PTSD) have received extensive attention, particularly in combat veterans. Among the factors implicated are severity of trauma,[1-6] pretrauma factors such as age, education, and psychiatric illness,[5] posttrauma negative life events,[7] and social support.[8] These factors have not been adequately examined in survivors of torture, mainly because of the difficulties in carrying out systematic studies on this group of survivors. Study of predictors helps identify trauma survivors at risk for chronic stress reactions and contributes to our understanding of psychological trauma and effective ways of treating it. Furthermore, prediction studies may shed light on how the trauma of torture and other associated stressors relate to short-term and long-term psychological symptoms in torture survivors. Clarification of this issue also may have implications for legal practice concerning compensation claims and political asylum applications.

Survivors of torture often experience a wide range of stressful life events in a social and political environment conducive to torture.[9] Most common stressors include other forms of violence during social and political turmoil, harassment and persecution by the authorities, threats of death to self and family, uprooting, displacement, loss of social and economic status, loss of educational or occupational opportunities, bereavement, and refugee status. These stressors may confound the relationship between the torture and subsequent traumatic stress responses. Therefore, study of the effects of torture requires appropriate research designs or statistical methods to control for the effects of other stressors. This requirement has not been adequately met in most studies of torture survivors.[9,10]

For editorial comment see p 400.

The present report is based on a previously reported study of 55 survivors of torture in Turkey,[11] which demonstrated that tortured political activists had significantly more PTSD than did a group of matched comparison subjects. This difference was attributable to torture since both groups were similar in many sample characteristics including life events other than torture. In this report, we examined the relative contributions of various factors to posttorture psychological symptoms using a

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multivariate approach. The predictors we studied fell into the following three groups: (1) precaptivity variables (eg, demographics and personal and family history of psychiatric illness), (2) captivity variables (eg, severity of torture, nontorture psychosocial stressors), and (3) postcaptivity variables (eg, impact of trauma on various areas of life, other psychosocial stressors, and social support).

Distinctions were made between torture, secondary effects of torture and captivity experience on life areas (eg, physical disability, breakdown of marital relationship, loss of social status, unemployment), and nonspecific stressors in evaluating stressful life events reported by the torture survivors. These distinctions allowed testing of the hypothesis that these stressors contribute independently to long-term psychological problems in torture survivors.

We also examined certain aspects of torture experience that are often considered to be related to subsequent stress responses, depression, and guilt. Since one of the primary aims of torture is to extract information or confession from the detainees, incriminating themselves and/or others, many detainees find themselves in a double bind, having to choose between self or significant others for protection from harm.[12] Submissive behavior under torture may be associated with subsequent guilt, shame, and depression, particularly in individuals who have important personal, moral, and political reasons to resist torture. However, it is not clear whether these symptoms reflect the cognitive effects of violating moral values or the general severity of trauma. This distinction may be important in choice of treatment. For example, if the latter explanation is true cognitive therapy focusing on coping behaviors during trauma may not be helpful in alleviating depression, and other treatments that can reduce the helplessness effects of uncontrollable trauma might be preferred.

Various features of political history such as commitment to a political cause and unexpectedness of and preparedness for trauma were also examined as predictors of posttorture psychological responses. The selection of these variables was guided by theoretical formulations[13] of various aspects of the traumatic experiences of torture survivors. Unpredictability and uncontrollability of traumatic stressors are known to be associated with subsequent anxiety, depression, and stress responses.[14]

The study design thus allowed testing of the following primary hypotheses: (1) torture has effects on long-term psychological functioning, independent of those of other stressors in a politically repressive environment, (2) loss of control during torture predicts subsequent anxiety and depression, and (3) unexpectedness of torture predicts long-term traumatic stress reactions.

METHODS

Details of the method and procedures were previously published.[11] To summarize, the study involved three groups: 55 political ex-prisoners who had been subjected to systematic torture (group 1); 55 nontortured political activists, matched with group 1 for age, sex, marital status, education, sociocultural status, political ideology, and political involvement (group 2); and 55 subjects with no history of torture or political activism, matched with group 1 for age, sex, marital status, and education (group 3). This report focuses on predictors of the psychological status of group 1.

The study was announced in the media through articles in newspapers and political journals requesting survivors of torture to participate. The torture survivors were left-wing political activists who had been tortured during detention and/or imprisonment in the late 1970s and throughout the 1980s in Turkey, particularly following the 1980 military coup. Fifty-eight survivors were initially enrolled in the study: 53 were consecutively referred to the study by human rights organizations, lawyers, or friends who had heard of the study, and five responded to media advertising. Of the 58 subjects, none refused to be interviewed, but three failed to attend the second interview. All study participants signed a consent form that explained the aims of the study in detail. Strict confidentiality was emphasized and participants were allowed to remain anonymous or to use a pseudonym.

The account of torture was validated by independent information from the referring source for 50 subjects. None of the survivors had received any treatment or other professional help in the interim period. The interviews were conducted by two psychologists and four psychiatrists trained in the use of semistructured instruments. The interviews of group 1 and group 2 were conducted in two parts during 1 week in 1992. Group 3 was interviewed in 1993.

Assessment

Details of measures used in the study can be found in our previous report.[11] The Semi-structured Interview for Survivors of Torture (SIST) (based in part on the Jackson Interview Form[15]) was used to obtain information on personal history, details of prison and torture experience, and nontorture stressful life events. This interview also included an Exposure to Torture Scale, which provided information on forms of torture endured, number and duration of exposures, and subjective distress ratings related to each form of torture.

Other measures included the Structured Clinical Interview for *DSM-III* (SCID)[16] for psychiatric assessment, an assessor-rated PTSD checklist (modified from the Jackson Interview Form[15]), the standardized Turkish-language version[17] of the Beck Depression Inventory (BDI),[18] the Hamilton Depression Rating (HAM-D),[19] the Hamilton Anxiety Scale (HAM-A),[20] and the standardized Turkish-language version[21] of State-Trait Anxiety Inventory (STAI-State).[22]

Before the study, an interrater reliability study was conducted on the SCID and the SIST, involving six subjects who were not included in the study. The assessments of these subjects were carried out jointly by the six interviewers who then compared their ratings and resolved their differences. Concordance rates of 90% and 95% were achieved in the use of the SCID and the SIST, respectively.

Variables for Analysis of Torture Survivors

The following independent variables were selected for Pearson correlational and multiple regression analyses:

1. **Precaptivity Variables.**—Age, sex, marital status, education, income, age at trauma, past psychiatric illness, and family history of psychiatric illness.

The SIST also provided information on various aspects of political history. These included level of political activity, commitment to a political group, threat of torture prior to detention, prior knowledge of torture, unexpectedness of arrest/torture, and psychological preparedness for torture. The latter rating was based on an evaluation of the survivor's political views, degree of commitment, to his/her cause, awareness of the possible consequences of this commitment and preparedness to assume the ultimate responsibility for his/her decisions at the time. Any training in physical and mental stoicism the survivor might have had as part of political group activity was also taken into account.

2. **Psychosocial Stressors During and After Captivity.**—As standardized life events questionnaires were not available in Turkish, stressful life events during and after captivity were assessed using the Severity of Psychosocial Stressors Scale for adults from *DSM-III-R* (0=none, 5=catastrophic).[23(p11)] These events included nontorture stressors such as natural death or killing of a loved one, serious illness or physical injury,

unintentional injuries, natural disasters, separation from loved ones, and stressful events during political activity (eg, physical violence during mass demonstrations, bomb explosions). The severity ratings for each of these events were summed to obtain total scores for nontorture psychosocial stressors, separately for the period of captivity and for the period following release from prison.

3. **Perceived Severity of Torture.**—This measure was derived from the Exposure to Torture Scale by summing the subjective distress ratings (1=no/minimal distress, 4=extremely distressing) related to each form of torture.

4. **Appraisal of Behavior Under Torture.**—Subjects were asked, "Do you think you have acted, under those circumstances, in any way that troubled you later on?" (No/yes).

5. **Duration of Captivity.**—Duration of detention and/or imprisonment in months.

6. **Impact of Captivity/Torture on Physical Health, Family, Social Life, Economic Status, Work, and Political Career.**—This assessment focused on the effects of detention, torture, and imprisonment on the various spheres of life (eg, physical disability, loss of occupational or educational opportunities, loss of social status, and divorce as a result of long-term imprisonment) rather than the effects of posttorture stress responses on subsequent functioning (0=none at all, 4=extremely severe).

7. **Perceived Support From Spouse or Partner, Close Relatives, and Friends.**— This rating was based on the survivors' own evaluations of the degree of support from significant others (0=strong support, 4=no support at all).

The dependent variables included in the analysis were the number of PTSD symptoms since the trauma, number of current PTSD symptoms, BDI, HAM-D, STAI-State, and HAM-A. The number of PTSD symptoms since the trauma was derived from the SCID, which yielded one of three ratings (absent, probable, or definite) for 17 PTSD symptoms; only definite PTSD symptoms were taken into account. These symptoms were intrusive recollections of the event, nightmares, flashbacks, distress when exposed to reminders of the event, avoidance of thoughts related to trauma, avoidance of activities or situations that resemble the trauma, psychogenic amnesia, diminished interest in activities, feelings of detachment, restricted affect or emotional numbing, sense of foreshortened future, sleep disturbances, irritability, concentration difficulty, hypervigilance, startle response, and physiological reactivity to reminders of trauma.

The number of current PTSD symptoms was derived from the PTSD-checklist with symptoms rated 1 to 5 (absent to severe) for severity. Twelve associated symptoms (crying spells, suicidal thoughts, loss of appetite, anhedonia, depressed mood, worrying, somatic anxiety, psychic anxiety, aggressiveness, physical fights, threatening someone without a weapon, and fear of losing control) were also included in the analysis. Symptoms with severity ratings of 2 (mild) or higher were counted as present.

The SCID diagnosis of PTSD was not used as a dependent variable because only 10 survivors met the criteria for current PTSD.

RESULTS

Sample Characteristics

The demographic and clinical features of the three groups are presented in Table 1. The groups were similar in age, sex, education, and marital status. The subjects with no history of torture or political activism (group 3) differed from the other groups in ethnic and income status. The torture survivors had significantly higher scores on most measures of psychological status than the other two groups, but their levels of anxiety and depression were within normal range. The incidence of current major depression did not significantly differ between the three groups. However, the torture survivors were more likely to have lifetime and current PTSD than the nontortured subjects.

Forty-five percent (25) of the torture survivors were female. The mean age of all suvivors was 31 years and 47% (26) were married. The mean time since release from prison was 41 months (SD, 43 months). The last incidence of torture had occurred a mean of 61 months ago (SD, 45 months). The mean age at torture was 26 years (SD, 5).

The survivors had a mean of 6 (SD, 4) PTSD symptoms since the trauma. The mean number of current PTSD symptoms was 12 (SD, 6). Only two survivors had current major depression. Thirty-three percent (18) of the survivors had PTSD at some stage after the torture while 18% (10) had current PTSD. The symptoms were moderately severe; no survivor had severe PTSD.

Eighty-two percent (45) of the torture survivors were fairly/very active politically and 80% (44) were fairly/very

Table 1.—Sample Characteristics

	Political Activists				
Characteristic	**Tortured (Group 1)**	**Nontortured (Group 2)**	**Subjects With No History of Torture or Political Activism (Group 3)**	**χ^2 (*df*=2)***	***P*†**
Mean (SD) age, y	31 (5.5)	31 (5.5)	31 (5.8)	3.5	NS
Sex, No. (%)					
Male	30 (55)	30 (55)	30 (55)		
Female	25 (45)	25 (45)	25 (45)		
Mean (SD) education score, range 1-5‡	4.2 (0.8)	4.2 (0.8)	4.2 (0.8)	0.11	NS
Ethnic status, No. (%)					
Turkish	37 (67)	28 (51)	48 (87)	15.8	<.01
Kurdish	8 (15)	9 (16)	1 (2)	7.1	.03
Circassian	3 (5)	4 (7)	2 (4)	0.8	NS
Other	7 (13)	14 (26)	4 (7)	6.6	.04
Mean (SD) income score, range 1-4§	1.7 (0.6)	1.8 (0.7)	2.2 (0.6)	11.8	<.01
Marital status, No. (%)					
Married	26 (47)	26 (47)	34 (62)	3.7	NS
Single	29 (53)	29 (53)	21 (38)		
Clinical ratings, mean (SD)					
Hamilton Depression Rating	5 (5.0)	2.9 (3.4)	2.9 (3.6)	14.5	<.01
Hamilton Anxiety Scale	7.5 (6.5)	3.9 (5.1)	4.7 (5.3)	12.0	<.01
Beck Depression Inventory	9.5 (7.4)	6.4 (5.6)	5.7 (6.1)	6.4	.04
STAI-State	40 (11)	38 (9.4)	35 (9.4)	5.4	NS
GHQ	29 (16)	22 (12.6)	19.5 (12.6)	12.8	<.01
SCID diagnoses, No. (%)					
Current major depression	2 (4)	0	2 (4)	2.7	NS
Past major depression	17 (31)	13 (24)	4 (17)	8.6	.02
Current PTSD	10 (18)	2 (4)	0	14	<.01
Lifetime PTSD	18 (33)	6 (11)	0	23	<.01

*Cochran Q for dichotomous variables, Friedman two-way analysis of variance for continuous variables.

†NS indicates not significant. STAI-State, standardized Turkish-language version of State-Trait Anxiety Inventory; GHQ, general health questionnaire; SCID, Structured Clinical Interview for *DSM-III*; and PTSD, posttraumatic stress disorder.

‡1=none; 5=university.

§1=low; 4=high.

Table 2.—Correlations Between Predictor Variables and Measures of Current Psychological Status Among 55 Torture Survivors*

	Measure of Psychological Status					
	PTSD Symptoms					
Predictor Variables	Lifetime	Current	BDI	HAM-D	STAI-State	HAM-A
Age at torture	−.27†	NS	NS	−.30†	NS	NS
Level of political activity (low)	NS	NS	NS	NS	.32†	NS
Prior threat of arrest/torture (low)	NS	NS	NS	NS	.30†	.29†
Preparedness for torture (low)	NS	NS	NS	NS	.28†	NS
Commitment to group (low)	NS	NS	NS	NS	.29†	NS
Unexpected arrest/torture (high)	NS	NS	NS	NS	.29†	NS
Duration of captivity	NS	NS	NS	NS	−.32†	NS
Time since last torture	NS	NS	NS	NS	−.30†	NS
Threat of further arrest/torture (high)	NS	NS	NS	NS	.28†	NS
Postcaptivity support						
Relatives (low)	NS	NS	.44‡	.39§	.45‡	.39§
Friends (low)	NS	NS	.27†	.32†	NS	.46‡
Negative effect of captivity on life areas						
Physical health	NS	NS	.34†	NS	NS	NS
Family	.51‡	.46‡	.41§	.35§	NS	.32†
Social	.40§	.36§	NS	NS	NS	NS
Economic	.35§	.29†	NS	NS	NS	NS
Employment	.38§	.35§	.37§	.37§	NS	.29†
Severity of postcaptivity stressors	.48‡	.35§	.30†	.47‡	NS	.28§
Perceived severity of torture	.42‡	.43‡	NS	NS	NS	NS

*PTSD indicates posttraumatic stress disorder; BDI, Beck Depression Inventory; HAM-D, Hamilton Depression Rating; STAI-State, State-Trait Anxiety Inventory; HAM-A, Hamilton Anxiety Scale; and NS, not significant.

†$P<.05$.

‡$P<.001$.

§$P<.01$.

committed to a cause before captivity. Ninety-one percent (50) belonged to a political group. For 84% (46) of the survivors, there was a distinct possibility or threat of arrest/torture before it actually happened; only two experienced torture as an entirely unexpected happening. Sixty-two percent (34) were psychologically well prepared for arrest and torture. All survivors knew about torture and what it involved before its occurrence.

Ninety-three percent (51) of the torture survivors held critical information concerning significant others. Seventy-five percent (41) perceived this information as danger to friends and comrades. Forty-seven percent (26) believed they had given in to the pressure and acted in ways that troubled them later. These included signing confessions incriminating self and/or others, answering some of the questions under torture, not sufficiently resisting arrest or behaving too "tamely" during interrogation, quitting a hunger strike because of stomach bleeding, panicking during detention, and confessing to being a member of an organization the name of which was not even known to the survivor. Of these 26 survivors, nine reported feeling that their actions caused some "inconvenience" for significant others, though no one thought they had endangered other people's lives.

Details of the nature and severity of torture experienced by the survivors were described previously.[11] In summary, the survivors reported a mean of 23 (SD, 7; range, 9 to 41) different forms of torture. The mean total number of exposures to different kinds of torture was 291 (SD, 222; range, 24 to 822). The most common forms of torture (reported by more than 50% of the survivors) included verbal abuse, beating, blindfolding, alternating gentle and rough treatment, forced standing, threats of further torture, prevention of personal hygiene, being pulled by the hair, electrical torture, being made to witness torture, threats of death, being stripped naked, prevention of urination/defecation, isolation, sleep deprivation, restriction of movement, beating of the soles of the feet, deprivation of medical care, exposure to extreme heat or cold, threats of rape, denial of privacy, threats of harm to family, vermin-infested suroundings, food deprivation, and hanging by wrists.

The torture events took place during a mean 47 months of captivity (SD, 56; range 1 day to 166 months). At the time of assessment only 40% (22) of the survivors considered themselves completely free; others had various continuing legal problems. Sixty-nine percent (38) were at risk of rearrest and further torture.

Seventeen of the survivors were unemployed since release from prison. Of the 26 survivors who had not finished their education before detention or imprisonment, 17 resumed studies after release. No survivor had a history of alcohol or drug abuse after the prison experience. Of 38 survivors who had a stable relationship with a sexual or marital partner since release from captivity, 36 described the quality of their relationship as average or better.

Correlational Analyses

The Pearson correlations between the predictor variables and the measures of current psychological status are shown in Table 2. The variables that showed no significant correlations with any of the measures of psychological status are not included in Table 2. These variables included history of drug and alcohol abuse, detention by police, being charged with a crime, and having a trial in court.

Negative effect of trauma event on life areas and postcaptivity stress correlated with PTSD symptoms, depression, and anxiety measures (except for STAI-State). Younger age at torture was associated with more PTSD symptoms and significant HAM-D scores.

Certain correlational patterns were noteworthy. Low social support was associated with anxiety and depression, but not with PTSD symptoms. On the other hand, perceived severity of torture was associated with PTSD symptoms, but not with anxiety and depression. Low levels of political activity and commitment, less threat of torture before arrest, unexpectedness of trauma, and greater risk of further arrest and torture significantly correlated with only STAI-State.

The 13 survivors with a positive family history of psychiatric illness, compared with those who had a negative history, had significantly higher scores on number of lifetime PTSD symptoms (9±4 vs 5±4; $t=-2.8$; $P<.01$), number of current PTSD symptoms (16±6 vs 11±6; $t=-2.5$; $P<.05$), BDI (14±9 vs 8±6; $t=-2.5$; $P<.05$), HAM-A (12±8 vs 6±5; $t=-2.4$; $P<.01$), and HAM-D (8±5 vs 4±4; $t=-3.2$; $P<.01$) (all t tests were two-tailed, all $df=53$). The six survivors who had past psychiatric illness before the torture compared with those without a history of past psychiatric illness had significantly higher scores on only HAM-D (9±6 vs 4.4±4; $t=-2.6$; $P<.05$).

The 13 survivors who had a positive family history of psychiatric illness did not have less support from close relatives than did those who had no psychiatric illness in the family (1.5±1.5 vs 1.0±1.2; two-tailed $t=-.86$; $P=.40$). Thus, the effect of family psychiatric illness on psychological status could not be explained by less support from the family.

The survivors who reported behaviors under torture that caused regret later did not have significantly higher scores on any of the clinical measures than did those who reported no such behaviors. The prevalence of major depressive illness at some stage after the torture, however, tended to be higher in the former group (69% vs 39%, $\chi^2=3.1$ after continuity correction), but was not statistically significant ($P=.08$). A similar trend was not noted for PTSD. This association is unlikely to reflect a confound of torture severity since neither objective and subjective measures of torture severity nor duration of detention/imprisonment correlated significantly with reports of loss of control during torture. It could, however, reflect a confound of social support since the survivors who reported loss of control under torture had significantly less support from friends and comrades after captivity than did those who did not report loss of control (1.6±1.3 vs 1.0±0.8 on a scale of 0 to 4; $t=-2.1$; $P<.05$).

Only one of the six clinical measures (STAI-State) correlated significantly with time since last torture ($r=-.30$; $P<.05$) and duration of captivity ($r=-.32$; $P<.05$). Thus, the survivors with a more recent history of torture and shorter duration of captivity had higher anxiety scores but not more PTSD symptoms or depression.

Table 3.—Multiple Regression Analyses: Predictors of Current Psychological Status Among 55 Torture Survivors*

	Change in R^2	β	t	P
No. of PTSD symptoms				
Lifetime				
Effect of trauma on family (high)	.25	.34	3.0	<.01
Perceived severity of torture	.09	.24	2.2	<.05
Family history of psychiatric illness	.06	.26	2.5	<.05
Severity of psychosocial stressors	.05	.27	2.4	<.05
Current				
Effect of trauma on family	.19	.37	3.3	<.01
Perceived severity of torture	.10	.30	2.6	<.05
Family history of psychiatric illness	.04	.24	2.1	<.05
STAI-State				
Support from relatives (low)	.18	.45	3.6	<.01
Threat of further arrest/torture	.06	.26	2.2	<.05
HAM-A				
Support from relatives (low)	.14	.37	3.5	<.01
Family history of psychiatric illness	.12	.33	3.1	<.01
Effect of trauma on education/employment	.09	.26	2.4	<.05
Severity of postcaptivity stressors	.05	.26	2.4	<.05
BDI				
Support from relatives (low)	.18	.43	4.3	<.01
Effect of trauma on education/employment	.17	.41	4.1	<.01
Family history of psychiatric illness	.07	.26	2.6	<.05
Effect of trauma on physical health	.05	.24	2.3	<.05
HAM-D				
Severity of postcaptivity stressors	.21	.33	3.4	<.01
Family history of psychiatric illness	.11	.34	3.6	<.01
Support from relatives (low)	.10	.35	3.9	<.01
Effect of trauma on education/employment	.10	.33	3.4	<.01

*PTSD indicates posttraumatic stress disorder; STAI-State, State-Trait Anxiety Inventory; HAM-A, Hamilton Anxiety Scale; BDI, Beck Depression Inventory; and HAM-D, Hamilton Depression Rating.

Multiple Regression Analyses

Multiple regression analyses were performed to examine the unique effects of the predictor variables. To reduce the number of variables for regression analyses, only the predictor variables showing significant correlations with the clinical measures (listed in Table 2) and family and personal history of psychiatric illness were selected. Each clinical measure was used as a dependent variable in turn, entering the predictor variables into the regression equation in a stepwise fashion. Significant predictors for each dependent measure are shown in Table 3.

An inspection of prediction patterns revealed several findings of interest. First, family history of psychiatric illness was a consistent predictor, associated with all measures except STAI-State. Second, consistent with the correlational analyses, perceived severity of torture predicted only PTSD and not anxiety/depression. Third, social support variables showed strong predictions on anxiety/depression ratings but not on PTSD measures. Fourth, the secondary effect of trauma on life areas predicted PTSD and anxiety/depression. Finally, the effect of trauma on family was the strongest predictor of PTSD, explaining two to three times as much variance in PTSD symptoms as did perceived severity of torture.

COMMENT

Among the variables examined, perceived severity of torture, impact of trauma on family and educational or occupational status, family history of psychiatric illness, postcaptivity stressors, and social support predicted long-term psychological symptoms. None of the demographic variables or situational stress factors during captivity other than torture related to current psychological status. Younger age at torture was only moderately correlated with some measures and showed no independent predictions in regression analyses.

Perceived severity of torture predicted PTSD but not anxiety and depression, suggesting that PTSD and anxiety/depression were distinct phenomena. This is further supported by several other findings: (1) PTSD symptoms were present in many survivors who had no anxiety/depression, (2) PTSD symptoms were the strongest discriminators between the tortured and nontortured groups,[11] and (3) the reexperiencing symptoms (eg, intrusive thoughts, flashbacks, and nightmares) and fear and avoidance responses were related to torture and not to other associated traumatic stressors during and after captivity. These findings suggest that the "core" PTSD symptoms (nightmares, flashbacks, distress when reminded of the trauma, avoidance of trauma-related thoughts, activities, or situations, and physiological reactivity to reminders of trauma) observed in our study group reflect the direct conditioning effects of torture. This is consistent with learning theory formulations of psychological trauma[14] and stress responses under torture.[13]

There may be several explanations for the low prevalence of depression in our study group. First, the torture events were perceived as extremely distressing by 20% of the survivors, fairly distressing by 54%, and moderately or mildly distressing by 26%. Thus, despite the extreme nature of the torture in objective terms (mean 291 exposures to 23 different forms of torture), its perceived effect may not have been sufficiently traumatic to induce loss of control, helplessness, and chronic depression in most survivors. Studies of animals and humans have shown that posttrauma anxiety and depression are associated with helplessness and hopelessness induced by uncontrollable stressors.[14] Second, effective coping responses that help to avoid loss of control during torture[13] may have reduced the traumatic effects of uncontrollable stressors. Third, the widely shared perception of torture in our study group as a price to pay in the struggle for a better world may also have reduced the effect of the trauma. Inability to find a meaning for the trauma is an important factor in PTSD.[24] Finally, strong social support may have provided protection from the helplessness effects of torture and subsequent stressors. Indeed, depression was associated with lack of social support and postcaptivity stressors. The low prevalence of depression may also explain the lack of alcohol and other drug abuse found in our study group.

Lack of social support predicted anxiety and depression but not PTSD symptoms. This is consistent with the earlier finding that PTSD and anxiety/depression were independent phenomena. This finding, if verified, may shed some light on the little-understood relationship between social support and PTSD. Our results appear to suggest that social support acts differentially on PTSD symptoms, alleviating anxiety/depression, possibly by reducing helplessness and hopelessness, but not directly affecting PTSD symptoms. It is possible that social support following uncontrollable trauma facilitates coping with subsequent stressors, thereby reducing cognitions of "certainty of future negative outcomes" and speeding recovery of perceptions of control.[13] On the other hand, the core PTSD symptoms may be left relatively unaffected. This finding implies that trauma survivors may need more than social support for complete recovery from PTSD. Interventions aiming at extinction of trauma-related fear and anxiety responses (eg, behavioral techniques) may be helpful in dealing with these symptoms.[8,25]

In the absence of culturally validated life events questionnaires, we used simple ratings to measure various life events. These measures showed predictive validity. Three types of stressors (torture, secondary effects of captivity/torture on various life areas, and general psychosocial stressors) contributed to PTSD and anxiety/depression. The effect of trauma on family was the most significant predictor, explaining 25% of the variance in PTSD symptoms after the trauma. These findings point to the types of stressors and life areas that need attention during treatment. Strategies for social support and helping torture survivors cope with future life stressors may be important, considering that severe trauma may sensitize the central nervous system to subsequent stressors.[26]

There were significant differences between the three groups with respect to ethnic status and income. There were more Turkish and less Kurdish subjects among the subjects with no history of torture or political activism (group 3) than among the other two groups of political activists. This was attributable to the difficulties in matching of subjects on more than three variables. This imbalance is unlikely to have affected the results of our analyses because ethnic status showed no association with posttorture psychological problems. Group 3 subjects had higher income status than did the other subjects, but the difference (although statistically significant) was not substantial. This difference may have reflected, in part, employment difficulties among the political activists resulting from commitment to political activity or long-term imprisonment, rather than a dissimilarity between groups in social class.

In this study, we made a distinction between the primary effects of torture and the effects of long-term consequences of the torture/captivity experience (eg, physical disability, loss of social status, and loss of educational or occupational opportunities). While this distinction may have been somewhat arbitrary, it was useful in examining the psychological effects of torture as an uncontrollable stressor. The secondary effect of torture on various life areas did not necessarily reflect the severity of torture since measures of torture severity showed no significant correlations with long-term effect of torture on physical health, family life, and other areas of social functioning. This is not surprising since permanent physical disability, for example, may follow a single occurrence of one form of torture (eg, hearing loss caused by a blow on the ear, neurological sequelae in the arms caused by hanging by the wrists), whereas multiple occasions of other forms of torture (eg, psychological) may not result in any physical disability. The predictive value of measures of long-term effects of torture and captivity experience should nevertheless be interpreted with caution since they were single ratings based on self-report without additional information from other sources such as the spouse, family, or friends.

The sequential nature of traumatization raises questions about the diagnosis of PTSD in torture survivors. Perhaps psychological trauma in torture survivors is better conceptualized as a series of primary traumatic events interspersed with secondary stressors, all contributing to an ongoing traumatization process. The relative weights of such primary and secondary processes in producing traumatic stress responses deserve further attention in other trauma groups as well as in survivors of torture.

Commitment to a political cause, prior expectations of torture, and preparedness for torture were associated only with anxiety. The correlations, although significant, were relatively low. None of these variables showed significant predictions in the regression analyses. In part, this may be attributable to the fact that the study group was fairly homogenous with respect to these variables; most survivors were highly committed political activists with prior preparedness for arrest and torture. This may also explain in part why the group had only moderately severe PTSD symptoms and low anxiety/depression despite severe torture.

We found some evidence of an association between negative appraisal of behavior under torture and subsequent major depression. Such appraisal, however, did not relate to current psychological status. It is possible that this relationship was mediated by subsequent loss of social support network in a cultural setting where insufficient resistance against torture was regarded as weakness of character or untrustworthiness. These findings, however, are tentative for several reasons. First, the association noted was fairly weak. Second, the acts that were negatively evaluated by the survivors did not seem to have had serious consequences such as the torture or death of significant others. Thus, the emotional conflicts experienced by the survivors may not have been sufficiently intense to lead to major depression. Finally, appraisal of certain acts under torture as "undesirable" may reflect a certain attributional style (eg, tendency to self-blame), which may have also played a role in subsequent depression.

Our results contrast with previous reports of a high incidence of psychopathology in combat veterans[27-30] and former prisoners of war.[31-37] This may be explained by certain characteristics of our study group that may have had protective effects against PTSD. The nonrefugee status of the study participants meant that they were not deprived of their social support network. They had a strong belief system and no difficulty in giving a meaning to their ordeal. Torture was not an unexpected event for them; they had prior knowledge of what torture involved and most were psychologically prepared for it. Furthermore, prior exposures to other related stressors in political struggle may have immunized them against the traumatic effects of torture. Indeed, experimental work in animals and in humans suggests that immunization to traumatic stress is possible.[13] In addition, perception of events as traumatic varies considerably across cultures. [38] Therefore, it is possible that the subjective effect of the torture in our study group was not sufficiently severe to induce total loss of control and subsequent stress reactions. Finally, it is conceivable that certain cultures are more resilient to traumatic stress, perhaps partly because of repeated exposures to unpredictable and uncontrollable stressors in a less sheltered and protected environment.

CONCLUSIONS

These results based on within-group analyses are consistent with our previously reported findings of between-group analyses.[11] The findings from both sets of analyses suggest that torture has long-term effects independent of other stressors. The fact that the length of time since the torture had no significant relationship with the current severity of symptoms points to a chronic course of posttorture stress symptoms. In our study, the relationship between torture trauma and subsequent symptoms was relatively easy to discern since very few survivors were clinically depressed. This relationship may be confounded in more depressed samples.

In view of our findings, we propose a tentative model of traumatization in torture survivors: (1) torture may induce a core set of PTSD symptoms, possibly reflecting the conditioning effects of trauma; (2) subsequent stressors contribute both to PTSD and to anxiety/depression; and (3) lack of social support may aggravate the helplessness and hopelessness effects of stressors to produce anxiety and depression. Depression may occur at the outset if the torture is of perceived sufficient intensity to cause loss of control and helplessness, or later if the individual's coping responses, which may have been already impaired by the torture trauma, are overwhelmed by subsequent stressors and lack of social support. Our findings need replication in other torture survivor groups and in different social and cultural settings. Whether these predictions apply to other trauma groups also deserves future attention.

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